CLAIMS

1. A gas ejector including at least one vibrator, comprising: a plurality of ejecting sections adapted for ejecting air in a form of a pulsating flow such that vibration of the vibrator allows sound waves respectively generated upon ejection of the gas to weaken each other; and first control means for controlling the frequency of the vibration of the vibrator.

2. The gas ejector according to Claim 1, further comprising second control means for controlling the amplitude of the vibrator.

3. The gas ejector according to Claim 1, wherein the vibrator has the lowest resonant frequency not higher than 200 (Hz).

4. The gas ejector according to Claim 3, wherein the vibrator has the lowest resonant frequency not higher than 150 (Hz).

5. The gas ejector according to Claim 1, wherein the first control means controls the frequency so as not to be higher than 100 (Hz).

6. The gas ejector according to Claim 5, wherein the first control means controls the frequency so as not to be higher than 35 (Hz).

7. The gas ejector according to Claim 2, wherein the vibrator has a surface extending substantially orthogonal to

the direction of vibration thereof, and, when the area of the surface is not greater than 70,000 (mm^2), the first control means controls the frequency so as not to be higher than 100 (Hz), and the second control means controls the amplitude so as to be in the range from 1 (mm) to 3 (mm).

8. The gas ejector according to Claim 7, wherein the second control means controls the amplitude so as to be in the range from 1.5 (mm) to 3 (mm).

9. The gas ejector according to Claim 2, wherein the vibrator has a surface extending substantially orthogonal to the direction of vibration thereof, and, when the area of the surface is not greater than 70,000 (mm^2), the first control means controls the frequency so as not to be higher than 35 (Hz), and the second control means controls the amplitude so as to be in the range from 1 (mm) to 5 (mm).

10. The gas ejector according to Claim 9, wherein the second control means controls the amplitude so as to be in the range from 2 (mm) to 5 (mm).

11. The gas ejector according to Claim 1, wherein the vibrator has a surface extending substantially orthogonal to the direction of vibration thereof, and the area of the surface is in the range from 1,500 (mm^2) to 70,000 (mm^2).

12. The gas ejector according to Claim 11, wherein the area of the surface of the vibrator is not smaller than 2,000 (mm^2).

13. The gas ejector according to Claim 2, wherein the vibrator has a surface extending substantially orthogonal to the direction of vibration thereof, and

wherein, when the frequency driven by the first control means, the amplitude driven by the second control means, and the area of the surface are respectively defined by A (Hz), B (mm), and C (mm^2), the value of A × B × C is given in the range from 100,000 (mm^3/s) to 10,000,000 (mm^3/s).

14. The gas ejector according to Claim 13, wherein the value of A × B × C is smaller than 200,000 (mm^3/s).

15. The gas ejector according to Claim 1, wherein a thermal resistance of the region between a heater, to which the gas ejected from the respective ejecting sections is supplied, and gas surrounding the heater is not greater than 0.7 (K/W), and a noise level at a position about 1 (m) away from the sound source of the sound waves is not higher than 30 (dBA).

16. The gas ejector according to Claim 1, wherein the noise level is not higher than 25 (dBA).

17. The gas ejector according to Claim 16, wherein an envelope volume containing the respective ejecting sections and the heater is not greater than 250 (cm^3).

18. The gas ejector according to Claim 1, wherein the vibrator has an approximately symmetrical shape with respect to a plane extending orthogonal to the direction of

vibration thereof.

19. The gas ejector according to Claim 1, wherein a thermal resistance of the region between a heater, to which the gas is ejected from the respective ejecting sections, and gas surrounding the heater is not greater than 0.5 (K/W), a noise level at a position about 1 (m) away from the sound source of the sound waves is not higher than 30 (dBA), and an envelope volume containing the respective ejecting sections and the heater is not greater than 500 (cm^3).

20. The gas ejector according to Claim 1, wherein the vibrator includes a first vibrator having a surface extending orthogonal to the direction of vibration thereof and an asymmetrical shape with respect to the surface; and

a second vibrator having substantially the same shape as that of the first vibrator and arranged so as to vibrate along substantially the same direction as but in an opposite direction to that of the first vibrator.

21. The gas ejector according to Claim 1, wherein the respective ejecting sections include a housing including a plurality of chambers partitioned by the vibrator such that the chambers adapted for ejecting the gas have substantially the same volume as each other.

22. The gas ejector according to Claim 1, wherein the respective ejecting sections include a housing including a plurality of chambers partitioned by the vibrator and

adapted for ejecting the gas; and an actuator arranged outside the housing and adapted for driving the vibrator.

23. The gas ejector according to Claim 22, wherein the housing has a bore section extending from the outside thereof to at least one of the chambers,

the gas ejector further comprising:

a rod extending through the bore section and fixed to the vibrator so as to move integrally with the actuator, and

a supporting member provided in the bore section so as to support the rod.

24. An electronic device including at least one heater and at least one vibrator, comprising:

a plurality of ejecting sections adapted for ejecting gas in a form of a pulsating flow such that vibration of the vibrator allows sound waves respectively generated upon ejection of the gas to weaken each other; and

control means for controlling the frequency of the vibration of the vibrator.

25. A gas ejecting method, comprising the steps of: ejecting gas in a form of a pulsating flow such that vibration of at least one vibrator allows sound waves respectively generated upon ejection of the gas to weaken each other; and controlling the frequency of the vibration of the vibrator.